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10/565,839	03/19/2007	Neil Paton	069648-0388438	7755
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Pillsbury Winthrop Shaw Pitman LLP			EXAMINER	
P.O. Box 10500			OMCBA, ESSAMA	
McLean, VA 22102				
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			3726	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/565,839

**Applicant(s)**

PATON ET AL.

**Examiner**

Essama Omgba

**Art Unit**

3726

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Sano et al. (US Patent 6,638,577).

With regards to claim 1, Sano et al. discloses an exterior surface treated article comprising a bulk-solidifying amorphous alloy having a mechanically treated exterior surface (col.2, lines 66-67 and col. 3, lines 1-5). Applicant should note that amorphous alloys comprise bulk-solidifying amorphous alloys. Further it is inherent that the mechanically treated surface of Sano et al. will have improved durability and fatigue resistance over similar article without the mechanically treated surface since it is known that shot peening produces residual compressive stress which improves fatigue resistance, and improving fatigue resistance would improve durability since improved fatigue resistance will allow the article to be used longer before failure or damage.

Regarding claim 2, Applicant should note that shot peening inherently produces deformations on the surface being shot peened.

Regarding claims 3, 4 and 6, see column 3, line 1. Further using a shot-peening process with a shot having a diameter of approximately 0.006 inches to 0.040 inches, or a laser shock peening process are product-by-process limitations and as such have not

been given any patentable weight. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP §2113.

Regarding claim 5, see column 1, lines 6-7.

With regards to claim 8, Sano et al. discloses a method of applying a shot peening process to at least a portion of an exterior surface of an article, the article by made of bulk-solidifying amorphous alloy (col. 2, lines 66-67 and col. 3, lines 1-5). Applicant should note that armorphous alloys comprise bulk-solidifying armorphous alloys. Further it is inherent that the mechanically treated surface of Sano et al. will have improved durability and fatigue resistance over similar articles without the mechanically treated surface since it is known that shot peening produces residual compressive stress which improves fatigue resistance, and improving fatigue resistance would improve durability since improved fatigue resistance will allow the article to be used longer before failure or damage. Shot peening also typically produces a plurality of deformations on the shot peened surface.

Regarding claim 9, Applicant should note that it is inherent that the shot peening process of Sano et al. is applied to a substantial portion of the exterior surface since the whole exterior surface is prepared for coating.

Regarding claim 10, Applicant should note that it is inherent that improved durability and fatigue resistance would result in improved peak load for failure and increased cycles to failure under fatigue cycling.

3. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Opie et al. (US 2006/0149391).

Opie et al. discloses an article of bulk-solidifying amorphous alloy having an exterior surface with a plurality of deformations therein (paragraphs [0033], [0034] and [0034]). Applicant should note that it is inherent that such formed micro-structured morphologies, such as those formed by shot peening typically improve durability and fatigue resistance over similar articles without the mechanically treated surface since it is known that shot peening produces residual compressive stress which improves fatigue resistance, and improving fatigue resistance would improve durability since improved fatigue resistance will allow the article to be used longer before failure or damage.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. in view of Poynor (US 20020193177)

Sano et al. discloses an article of bulk-solidifying amorphous alloy as shown above. Although Sano et al. does not disclose a particular ratio of the peak load for failure of the article versus the similar article, however it is known to use a sufficient amount of shot peening to produce a sufficient residual compressive stress, whereby a high enough fatigue limit is reached to satisfy a desired peak load for failure, and determining the desired peak load limit is within the general skill level of a worker in the art, see paragraph [0027]. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have shot peened the article of bulk-solidifying amorphous alloy of Sano et al. to achieve a desired ratio of peak load for failure of the article versus a similar article, in light of the teachings of Poynor, in order to produce an article with improved durability.

6. Claims 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. in view of Kim et al. (US Patent 6,325,868).

Sano et al. discloses an article of bulk-solidifying amorphous alloy as shown above except for the recited composition. However such bulk-solidifying amorphous alloys are old and well known in the art as attested by Kim et al., see column 2, lines 26-62 and column 4, lines 7-16. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used an article of bulk-solidifying amorphous alloy having the recited composition as the article of Sano et al., in light of the teachings of Kim et al., since it has been held to be within the general skill level of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See

also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331.

7. Claims 1-5 and 8-10 are, *in the alternative*, rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al. in view of Scruggs et al. (WO 97/20601).

With regards to claim 1, Sano et al. discloses an exterior surface treated article comprising a bulk-solidifying amorphous alloy having a mechanically treated exterior surface (col.2, lines 66-67 and col. 3, lines 1-5). Applicant should note that amorphous alloys comprise bulk-solidifying amorphous alloys. Further it is inherent that the mechanically treated surface of Sano et al. will have improved durability and fatigue resistance over similar article without the mechanically treated surface since it is known that shot peening produces residual compressive stress which improves fatigue resistance, and improving fatigue resistance would improve durability since improved fatigue resistance will allow the article to be used longer before failure or damage. Although Sano et al. does not specifically disclose the amorphous alloy being a bulk-solidifying amorphous alloy, however it is known to form such articles from bulk-solidifying amorphous alloys as attested by Scruggs et al., see abstract and page 6, lines 11-18. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have made the article of Sano et al. from bulk-solidifying amorphous alloy, in light of the teachings of Scruggs et al., in order to achieve the benefits of using such known and readily available material, see page 3, lines 1-28 of Scruggs et al.

Regarding claim 2, Applicant should note that shot peening inherently produces deformations on the surface being shot peened.

Regarding claims 3, 4 and 6, see column 3, line 1. Further using a shot-peening process with a shot having a diameter of approximately 0.006 inches to 0.040 inches, or a laser shock peening process are product-by-process limitations and as such have not been given any patentable weight. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP §2113.

Regarding claim 5, see column 1, lines 6-7.

With regards to claim 8, Sano et al. discloses a method of applying a shot peening process to at least a portion of an exterior surface of an article, the article by made of bulk-solidifying amorphous alloy (col. 2, lines 66-67 and col. 3, lines 1-5). Applicant should note that amorphous alloys comprise bulk-solidifying amorphous alloys. Further it is inherent that the mechanically treated surface of Sano et al. will have improved durability and fatigue resistance over similar articles without the mechanically treated surface since it is known that shot peening produces residual compressive stress which improves fatigue resistance, and improving fatigue resistance would improve durability since improved fatigue resistance will allow the article to be used



longer before failure or damage. Shot peening also typically produces a plurality of deformations on the shot peened surface. Although Sano et al. does not specifically disclose the amorphous alloy being a bulk-solidifying amorphous alloy, however it is known to form such articles from bulk-solidifying amorphous alloys as attested by Scruggs et al., see abstract and page 6, lines 11-18. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have made the article of Sano et al. from bulk-solidifying amorphous alloy, in light of the teachings of Scruggs et al., in order to achieve the benefits of using such known and readily available material, see page 3, lines 1-28 of Scruggs et al.

Regarding claim 9, Applicant should note that it is inherent that the shot peening process of Sano et al. is applied to a substantial portion of the exterior surface since the whole exterior surface is prepared for coating.

Regarding claim 10, Applicant should note that it is inherent that improved durability and fatigue resistance would result in improved peak load for failure and increased cycles to failure under fatigue cycling.

8. Claims 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al./Scruggs et al. as applied to claim 10 above, and further in view of Poynor.

Sano et al./Scruggs et al. discloses an article of bulk-solidifying amorphous alloy as shown above. Although Sano et al./Scruggs et al. does not disclose a particular ratio of the peak load for failure of the article versus the similar article, however it is known to use a sufficient amount of shot peening to produce a sufficient residual compressive stress, whereby a high enough fatigue limit is reached to satisfy a desired peak load for

failure, and determining the desired peak load limit is within the general skill level of a worker in the art, see paragraph [0027]. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have shot peened the article of bulk-solidifying amorphous alloy of Sano et al./Scruggs et al. to achieve a desired ratio of peak load for failure of the article versus a similar article, in light of the teachings of Poynor, in order to produce an article with improved durability.

9. Claims 18-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sano et al./Scruggs et al. as applied to claim 1 above, and further in view of Kim et al.

Sano et al./Scruggs et al. discloses an article of bulk-solidifying amorphous alloy as shown above except for the recited composition. However such bulk-solidifying amorphous alloys are old and well known in the art as attested by Kim et al., see column 2, lines 26-62 and column 4, lines 7-16. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used an article of bulk-solidifying amorphous alloy having the recited composition as the article of Sano et al./Scruggs et al., in light of the teachings of Kim et al., since it has been held to be within the general skill level of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331.

***Response to Arguments***

10. Applicant's arguments filed November 3, 2010 have been fully considered but they are not persuasive.

In response to Applicant's argument that the following examiner's two statements are not self consistent: "Sano et al. discloses a method of surface treating an article made from amorphous alloy applying a shot-peening process on the surface of the article" and "Sano et al. does not specifically disclose the article being made from a bulk-solidifying amorphous alloy", the examiner submits that although it can be argued that broadly reciting "amorphous alloys" would include "bulk-solidifying amorphous alloys", for the sake of completeness and in the spirit of shortening prosecution, the examiner has introduced a secondary reference in the rejections in case Applicant wanted to argue that "amorphous alloys" do not necessarily include "bulk-solidifying amorphous alloys".

In response to Applicant's argument that Sano et al. relates to painting a golf club head, the examiner submits that although Sano et al. may be related to painting golf club heads, Sano et al. also discloses shot peening golf club heads. Even if shot peening was solely used to remove unwanted material from a surface of a golf club head, nevertheless the shot peening process would produce residual compressive stress which would improve fatigue resistance, and improving fatigue resistance would improve durability since improved fatigue resistance will allow the article to be used longer before failure or damage. Shot peening also typically produces a plurality of

deformations on the shot peened surface even if it is only used to remove unwanted material from the surface.

Applicant's other arguments are moot in view of the new grounds of rejections.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Essama Omgba whose telephone number is (571) 272-4532. The examiner can normally be reached on M-F 9-6:30, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Essama Omgba/  
Primary Examiner, Art Unit 3726

eo  
January 16, 2011